

10. On Specimens of the Perciform Fish *Tilapia nilotica* with increased number of anal spines. By G. A. BOULENGER, F.R.S., F.Z.S.*

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In the Cichlidae, as in most Perciform Acanthopterygians, three is the most frequent number of spines in the anal fin, and this number may be looked upon as a primitive character. It has generally been the custom for systematists to attach generic importance to an increase in the number of these spines, even when unaccompanied by any other character. In this I have differed, and refused to accept genera based on the number of anal spines when everything else pointed to close relationship with species showing the usual number, thus uniting Günther's *Oreochromis* (4 anal spines) with *Tilapia* and Pellegrin's *Astatoreochromis* (4 to 6 anal spines) with *Haplochromis*. I felt all the more justified in doing so from the fact that occasionally, as individual exceptions, the three spines may be increased to four, as in *Tilapia mossambica*, *variabilis*, *percivali*, *Haplochromis desfontainesii*. There is also the perplexing case of *Cyrtocara moorii*, of which only two examples are known, one with three anal spines, the other with four. My reform in classification has not met with the approval of Dr. Pellegrin, who has protested against the suppression of his genus *Astatoreochromis*, on the ground that the same character has been used for distinguishing American genera — with what regard to natural affinities appears to me questionable. I think the following fact disposes once for all of his objection.

It is with the greatest surprise that, on recently receiving from Mr. S. L. Hinde a series of over 30 specimens of a fish which I identified as the common *Tilapia nilotica*, a species with which I am familiar from a study of hundreds of specimens, the first I took up showed five anal spines, and the others either four or five. A table showing the variation in 30 of these specimens is here appended. This series was obtained in the Makindu and Isavo Rivers, affluents of the Athi River in British East Africa.

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Makindu and Isavo Rivers, affluents of the Athi River.

1	168	87	77	76	75	73	72	72	65	65	62	62	62	61	59	58	55	54	52	52	52	49	49	44	40	
2	.....	18	18	18	17	18	17	18	17	18	18	17	17	17	18	18	17	18	18	17	17	17	17	17	17	18	18
3	.....	11	10	11	10	11	10	11	10	10	10	12	11	10	10	11	10	10	10	10	10	10	10	10	10	10	10
4	.....	5	5	5	4	4	4	4	4	5	5	5	4	5	5	4	5	4	4	4	4	4	4	5	4	4	
5	.....	10	9	9	10	10	9	10	10	9	9	10	9	9	10	9	9	10	9	11	9	10	9	11	10	9	11
6	.....	32	31	31	31	31	31	31	31	31	31	31	31	32	31	32	31	32	32	31	32	30	32	32	31	31	32
7	.....	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½
8	.....	14	14	14	15	15	14	15	16	15	15	14	15	14	15	14	15	16	16	15	15	15	15	14	14	14	14
9	.....	22	21	21	22	21	19	21	20	21	22	20	22	21	19	21	21	23	20	20	20	22	20	22	21	22	20
10	.....	13	17	14	14	12	11	15	14	13	13	12	15	12	12	12	14	14	8	14	12	17	14	12	15	14	11
11	.....	17	17	17	18	18	17	18	17	18	17	18	17	18	17	17	17	17	18	18	17	16	17	17	17	17	17

1. Total length (in millimetres).

2. Number of dorsal spines.

3. Dorsal soft rays.

4. Anal spines.

5. Anal soft rays.

6. Scales in longitudinal series.

7. Scales in transverse series above the lateral line.

8. Scales in transverse series below the lateral line.

9. Upper lateral line.

10. Lower lateral line

11. Gill-rakers on lower part of anterior branchial arch.

Having previously received, after writing the description of *Tilapia nilotica* for the 'Catalogue of African Fresh-water Fishes,' two young specimens from another affluent of the same river, the Simba River, it occurred to me to examine them carefully, as I should have done before, and I found four to be the number of spines in both. In their physiognomy, in their coloration and markings, and in all structural particulars, these fishes are indistinguishable from *Tilapia nilotica*; and although, in view of the constancy of the increased number of anal spines, the Athi River specimens may be recognised as a new local form, under the name of var. *athiensis*, I should not think of proposing for them a new species.

A further remarkable fact is the presence of four anal spines in another *Tilapia* very closely related to, though sufficiently distinct from, *T. nilotica*, viz. *T. (Oreochromis) nigra* Gthr., also from the Athi basin. Why in the *Tilapia* from this river-system an increase should have taken place in the number of anal spines is difficult of explanation, unless it be that an abnormal transformation of a soft ray into a spine, as happens elsewhere, should have been a peculiarity of the first settlers in that basin of the widely distributed *T. nilotica*, and, becoming fixed, been passed on to *T. nigra*, which may well be regarded as derived from that species. Whatever this explanation be worth, the fact is clear that, unless our classification of the Cichlidæ be made still more artificial than it unfortunately is at present, the number of anal spines must not be used, as a single character, for the division into genera, and it affords the best justification that could be wished for the course I have followed in the past.